

What is claimed is:

1. A method for printing an extruded sheet comprising the steps of:  
providing an extruded sheet having an elevated temperature; and  
applying ink over said extruded sheet with at least one print roller,  
5 wherein said ink cures immediately upon contact with said extruded sheet.

2. The method of claim 1 further comprising the steps of:  
receiving said extruded sheet against a drum;  
positioning said at least one print roller adjacent said extruded sheet; and  
10 rotating said drum.

3. The method of claim 2 wherein said drum has a plurality of perforations in a surface thereof  
and further comprising the step of:  
applying a vacuum to said drum to hold said extruded sheet against said drum.

4. The method of claim 3 wherein said step of receiving said extruded sheet comprises the step  
of:  
positioning said extruded sheet against said drum with positioning rollers.

5. The method of claim 2 wherein said surface of said drum is formed of a flexible material.

6. The method of claim 1 further comprising the steps of:  
receiving said extruded sheet against a rotatable belt;  
positioning said at least one print roller adjacent said belt; and  
25 rotating said belt.

7. The method of claim 6 wherein said belt has a plurality of perforations and further  
comprising the step of:  
applying a vacuum to said belt to hold said extruded sheet against said belt.

8. The method of claim 7 wherein said belt is formed of a flexible material.

9. The method of claim 1 further comprising the step of embossing said extruded sheet after  
5 said step of applying said heat curable ink.

10. The method of claim 1 wherein a first print roller prints a background color on said  
extruded sheet and said second print roller prints a second color or a pattern of a second color on said  
extruded sheet, said first print roller and said second print roller are in registration with one another.

11. The method of claim 10 wherein said first print roller and said second print roller are  
simultaneously rotated.

12. The method of claim 1 wherein said elevated temperature is in the range of about 250° to  
15 about 450°.

13. The method of claim 1 wherein said ink is a heat curable ink or an evaporable ink.

14. The method of claim 1 wherein said print roller is a gravure cylinder.

15. The method of claim 1 wherein said extruded sheet is formed of polyvinylchloride (PVC),  
polystyrene, acrylonitrile-butadiene-styrene (ABS), nylon, ethylene-vinyl acetate (EVA),  
polycarbonate, polyethylene, polypropylene, polyethylene terephthalate, thermoplastic olefins,  
acrylonitrile-styrene-acrylic (ASA), and alloys, blends or coextrusions of these resins.

16. The method of claim 1 further comprising the step of:  
cooling said at least one print roller during application of said heat curable ink to said print  
roller.

17. A system for printing an extruded sheet comprising:  
means for receiving an extruded sheet having an elevated temperature; and  
means for applying ink over said extruded sheet with at least one print roller,  
wherein said ink cures immediately upon contact with said extruded sheet.

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18. The system of claim 17 further comprising:  
means for receiving said extruded sheet against a drum;  
means for positioning said at least one print roller adjacent said extruded sheet; and  
means for rotating said drum.

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19. The system of claim 18 wherein said drum has a plurality of perforations in a surface thereof and further comprising:  
means for applying a vacuum to said drum to hold said extruded sheet against said drum.

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20. The system of claim 19 wherein said surface of said drum is formed of a flexible material.

21. The system of claim 20 wherein said means for receiving said extruded sheet against said drum includes positioning rollers.

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22. The system of claim 17 further comprising:  
means for receiving said extruded sheet against a rotatable belt;  
means for positioning said at least one print roller adjacent said extruded sheet; and  
means for rotating said belt.

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23. The system of claim 22 wherein said belt has a plurality of perforations and further comprising:  
means for applying a vacuum to said belt to hold said extruded sheet against said belt.

24. The system of claim 23 wherein said belt is formed of a flexible material.

25. The system of claim 17 further comprising means for embossing said extruded sheet after applying said heat curable ink.

26. The system of claim 17 wherein a first print roller prints a background color on said extruded sheet and said second print roller prints a second color or a pattern of a second color on said extruded sheet.

27. The system of claim 17 wherein said print roller is a gravure cylinder.

28. The system of claim 17 wherein said extruded sheet is formed of polyvinylchloride (PVC), polystyrene, acrylonitrile-butadiene-styrene (ABS), nylon, ethylene-vinyl acetate (EVA), polycarbonate, polyethylene, polypropylene, polyethylene terephthalate, thermoplastic olefins, acrylonitrile-styrene-acrylic (ASA), and alloys, blends or coextrusions of these resins.

29. The system of claim 17 comprising:  
a plurality of said print rollers; and  
means for simultaneously rotating said plurality of print rollers.

30. The system of claim 29 further comprising:  
means for selectively lowering and raising said print rollers.

31. The system of claim 17 wherein said means for applying ink comprises a doctor blade positioned adjacent a respective said at least one print roller, said doctor blade applying said ink to said print roller.

32. The system of claim 31 further comprising:  
means for lowering and raising said doctor blade towards and away from said print roller.

33. The system of claim 17 further comprising:

means for cooling said at least one print roller during application of said heat curable ink to said print roller.

5        34. The system of claim 17 wherein said elevated temperature is in the range of about 250° to about 450°.

35. The system of claim 17 wherein said ink is a heat curable ink or evaporable ink.

10       36. A printing apparatus comprising:

a rotating drum having a plurality of perforations on the surface thereof for receiving an extruded sheet against said drum;

said extruded sheet having an elevated temperature in the range of about 250° to about 450°;

15       means for applying a vacuum to said rotating drum to retain said extruded sheet against said drum; and

at least one print roller positioned adjacent said drum for applying heat curable ink over said extruded sheet,

wherein said ink cures immediately upon contact with said extruded sheet.

20       37. The printing apparatus of claim 36 wherein a first print roller prints a background color on said extruded sheet and said second print roller prints a second color or a pattern of a second color on said extruded sheet, said first print roller and said second print roller being in registration with one another.

25       38. The printing apparatus of claim 37 wherein a third print roller prints a third color or a pattern of a third color on said extruded sheet.

39. The printing apparatus of claim 38 wherein a fourth print roller prints a fourth color or a pattern of a fourth color on said extruded sheet.

40. The printing apparatus of claim 39 wherein a fifth print roller prints a fifth color or a pattern of a fifth color on said extruded sheet.

5 41. A printing apparatus comprising:

a rotating belt having a plurality of perforations for receiving an extruded sheet against said belt;

said extruded sheet having an elevated temperature in the range of about 250° to about 450°;

means for applying a vacuum to said rotating belt to retain said extruded sheet against said

10 belt; and

at least one print roller positioned adjacent said belt for applying heat curable ink over said extruded sheet,

wherein said ink cures immediately upon contact with said extruded sheet.

42. The printing apparatus of claim 41 wherein a first print roller prints a background color on said extruded sheet and said second print roller prints a second color or a pattern of a second color on said extruded sheet, said first print roller and said second print roller being in registration with one another.

20 43. A vinyl siding product produced by the process of:

providing an extruded sheet having an elevated temperature in the range of about 250° to about 450°; and

applying heat curable ink over said extruded sheet with at least one print roller,

wherein said ink cures immediately upon contact with said extruded sheet.